

ABSTRACTA DEVICE AND METHOD FOR FATIGUE TESTING A SPECIMEN

A device (10) for fatigue testing of materials comprises a frame (14), first and second clamping means (16,18) for holding a specimen (12) to be tested. First and second mounting means (20,22) mount the clamping means (16,18) on the frame (14). The mounting means (20,22) vibrationally isolate the clamping means (16,18) from the frame (14). Actuator means (24) moves the first clamping means (16) relative to the second clamping means (18) to apply a low cycle load on the specimen (12). Electrical insulating means (30) electrically insulate the frame (14) from the specimen (12). A shaker (26) is coupled to the second clamping means (18) to apply a high cycle load on the specimen (12). A detector (32) detects the vibration of the specimen (12) and sends an electrical signal to a control unit (42) which determines the resonant frequency of the specimen (12). The control unit (42) sends a signal to the shaker (26) to maintain the high cycle load at the resonant frequency of the specimen (12). Electrical potential drop probes (38) are provided on the specimen (12) to send a second electrical signal to the control unit (42) which is arranged to determine the rate of crack growth, the fatigue life to crack initiation and fatigue life to failure of the specimen (12).

(Figure 2)